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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/831,051	05/04/2001	Junichi Aizawa	L9289.01133	8199

7590 08/25/2004

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EXAMINER

MUNOZ, GUILLERMO

ART UNIT	PAPER NUMBER
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2637

DATE MAILED: 08/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/831,051

Applicant(s)

AIZAWA ET AL.

Examiner

Guillermo Munoz

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 04 May 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 7-11 is/are rejected.
- 7) ☒ Claim(s) 5 and 6 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

**DETAILED ACTION*****Information Disclosure Statement***

The information disclosure statement filed May 4, 2001 fails to comply with the provisions of 37 CFR 1.97, 1.98 and MPEP § 609 because Applicant fails to provide an English translation of foreign patents JP00-69021 and JP99-284212. Applicant is advised that the date of any re-submission of any item of information contained in this information disclosure statement or the submission of any missing element(s) will be the date of submission for purposes of determining compliance with the requirements based on the time of filing the statement, including all certification requirements for statements under 37 CFR 1.97(e). See MPEP § 609 ¶ C(1).

***Specification***

The incorporation of essential material in the specification by reference to a foreign application or patent, or to a publication is improper. Applicant is required to amend the disclosure to include the material incorporated by reference. The amendment must be accompanied by an affidavit or declaration executed by the applicant, or a practitioner representing the applicant, stating that the amendatory material consists of the same material incorporated by reference in the referencing application. See *In re Hawkins*, 486 F.2d 569, 179 USPQ 157 (CCPA 1973); *In re Hawkins*, 486 F.2d 579, 179 USPQ 163 (CCPA 1973); and *In re Hawkins*, 486 F.2d 577, 179 USPQ 167 (CCPA 1973). Applicant is requested to incorporate essential material found in Japanese Patent Application No.HEI 11-263600 into the specification.

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***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4 and 7-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoeher et al. in view of Holden et al..

Regarding claim 1; Hoeher et al. teach a "Superimposed Pilot Sequence" is added to an unknown data sequence; this is known as spread-spectrum pilot technique or as a superimposed pilot sequence technique, note abstract. Hoeher et al. disclose that pilot symbols are also referred to as training symbols, note Introduction 2<sup>nd</sup> paragraph. Hoeher et al. teach the following advantages of superimposed pilot sequence channel estimation are a lack of bandwidth expansion, and improved performance in fast fading environments, note abstract. The technique has been applied for joint time and frequency synchronization of OFDM, note Introduction 3<sup>rd</sup> paragraph. However, Hoeher et al. do not specifically state the Pilot Sequence is processed through a spreading means prior to superimposing means, however, Hoeher et al. does disclose that the pilot signal is typically a PN sequence.

Holden et al. disclose that in a Spread Spectrum Pilot Technique (SSPT), the desired pilot tone is modulated by a pseudo-random binary sequence (PRBS) generator for finite duration and then linearly added to the source data, note abstract.

Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to characterize Hoeher et al.'s Superimposed Pilot Sequence with Holden et al.'s

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teaching of spreading a pilot tone with a pseudo-random sequence since both Hoeher et al. and Holden et al. use a Spread Spectrum Pilot Technique for channel estimation.

Regarding claim 2, Hoeher et al. teach the pilot symbols and data symbols are orthogonal by means of time division multiplexing, note Transmission Scheme with Superimposed Pilot Sequence 3<sup>rd</sup> paragraph. Hoeher et al. teach that the transmission system may be interpreted as a two-user system. Therefore, it would have been within the level of one having ordinary skill in the art at the time of the invention to characterize Hoeher et al.'s transmitted signal as a signal resulting from multiplexing signals of a plurality of channels from one transmission antenna, since such characteristics are generally applied to a transmit signal from a system having a plurality of user signals time multiplexed to form a transmit signal. Although Hoeher et al. do not teach a transmission antenna, the claimed subject matter is inherent to such a system.

Regarding claim 3, Hoeher et al. further teach the claimed subject matter "receiving means...despreading means", note Receiver Structure 1<sup>st</sup> paragraph.

Regarding claim 4, Hoeher et al. further teach the claimed subject matter, note Receiver Structure 3<sup>rd</sup> paragraph.

Regarding claim 7, see claim 1.

Regarding claim 8, see claim 3.

Regarding claim 9, see claim 1.

Regarding claim 10, see claim 1.

Regarding claim 11, see claim 1.

*Allowable Subject Matter*

Claims 5 and 6 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

Claim 5 is considered allowable because the invention comprises a receiver for receiving a transmitted Superimposed Pilot Sequence signal. The receiver comprises despreading means for extracting the pilot signal and a distance estimating means for estimates a distance between transmitter and receiver using the extracted pilot signal. The closest prior art Hoeher et al. teach a similar receiver having a means for extracting a pilot signal from a received Superimposed Pilot Sequence signal, however, Hoeher et al. fails to teach a distance estimating means for estimating a distance using the extracted pilot signal. This distinct feature has been included in dependent claim 5, thereby claim 5 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 6 is considered allowable because the invention comprises a receiver for receiving a transmitted Superimposed Pilot Sequence signal. The receiver comprises despreading means for extracting the pilot signal and a second spreading means for re-spreading the extracted pilot signal output from the despreading means. The closest prior art Hoeher et al. teach a similar receiver having a means for extracting a pilot signal from a received Superimposed Pilot Sequence signal, however, Hoeher et al. fails to teach a second spreading means for re-spreading the extracted pilot signal output from the despreading means. This distinct feature has been

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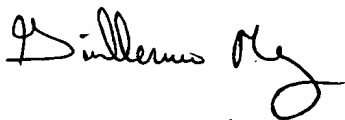
included in dependent claim 6, thereby claim 6 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

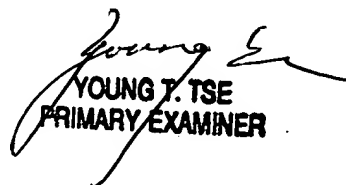
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Guillermo Munoz whose telephone number is 703-305-4224. The examiner can normally be reached on Monday-Friday 8:30a.m-4:30p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on 703-308-7728. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



GM  
August 19, 2004



YOUNG T. TSE  
PRIMARY EXAMINER